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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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JUL - 6 1992

Federal Communications Commission
Office of the Secretary

In the Matter of)
)
Redevelopment of Spectrum to)
Encourage Innovation in the)
Use of New Telecommunications)
Technologies)

ET Docket No. 92-9 ✓

ORIGINAL
FILE

REPLY COMMENTS OF
GE AMERICAN COMMUNICATIONS, INC.

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July 8, 1992

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Summary

In this reply, GE American Communications, Inc. ("GE Americom") addresses comments raised in response to the Commission's notice of proposed rulemaking in this docket as to how it should accommodate the needs of point-to-point microwave licensees that may be displaced from the 2 GHz band in order to make way for use of these frequencies by new telecommunications technologies.

GE Americom opposes those comments advocating reallocation of frequencies and channelization plans in the 4 GHz band to accommodate additional microwave operations, since these frequencies are used by customers of domestic communications satellites to downlink their signals to earth antennas. The proposals of one commenter, for example, would result in a loss of frequencies for which satellites and antennas were designed and compromise multi-million dollar investments, as well as complicating and delaying the already extensive coordination process between satellite users and microwave operations, to the detriment of satellite customers interested in the widespread distribution of their video programming.

Because of the heavy use of this portion of the spectrum and the daunting problems of coordination, GE Americom requests that the Commission consider alternatives to the use of the 4 GHz band by displaced microwave licensees, such as (1) permitting relicensing point-to-point microwave operations in this band only upon a showing that other bands are unavailable or unsuitable or (2) relicensing such operations within this band only on a secondary basis. Such conditions would be reasonable in light of the other frequencies open for reassignment and would balance the unique needs of satellite customers with the need of existing microwave licensees to be relocated.

GE Americom is also concerned about proposals to relocate certain displaced microwave licensees into the 12 GHz band, which customers of Ku-band antennas use to downlink signals, including video programming, to customers using small antennas. Because the antennas used to receive such video programming are unlicensed and thus not geographically restricted, coordination of these with proposed microwave facilities would be impractical, if not impossible. For this reason, GE Americom requests that the Commission not permit sharing in the portion of the 12 GHz band used for downlinking the services of customers on Ku-band satellites.

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GE American Communications, Inc. ("GE Americom") hereby
submits its reply comments in the above-captioned docket.

Introduction

As a pioneer in domestic satellite communications, GE
Americom recognizes the need to allocate spectrum to accommodate
new telecommunications and accordingly supports the Commission's
efforts to do so in this proceeding.

It is inevitable, however, that, given the present heavy
demands upon the available spectrum, the establishment of bands
for emerging technologies will require relocation of existing
services. As the Commission correctly characterized the
situation before it, the primary task resulting from assigning
existing spectrum to new technologies "is to identify a
relatively wide band of frequencies [for displaced licensees]
that can be made available with a minimum of impact on existing
users...."¹ In order to accommodate the fixed microwave

¹ ET Docket 92-9, Notice of Proposed Rulemaking, 7 FCC
Rcd 1542, 1543 (1992).

services currently licensed in the 1.85-2.20 GHz spectrum that will be displaced, the Commission has proposed to make available all fixed microwave bands above 3 GHz, including the 3.7-4.2 GHz band that fixed microwave operations share with downlinks of C-band satellites, and the 11.7-12.2 GHz band that is now used only for the downlinking of customer signals from Ku-band satellites.²

While GE Americom takes no position regarding the other matters raised in the notice of proposed rulemaking, GE Americom is seriously concerned with possible use of the 4 GHz and 12 GHz bands by microwave licensees displaced from the 2 GHz band, because relocation of point-to-point microwave operations into these bands will adversely affect the customers of domestic communications satellites using these frequencies to meet their unique needs.

Most of GE Americom's customers are video programmers who use GE Americom's C-band fleet for the nationwide distribution of their video feeds to thousands of cable head-ends, which, in turn, distribute this programming to over fifty million subscribers. Additionally, one of GE Americom's Ku-band satellites is used primarily by a customer to provide, via small-aperture antennas, video programming directly to the homes of consumers. Accordingly, there are strong public interest reasons for protecting these satellite customers and the millions of

²

7 FCC Rcd at 1544-45, 1548 n. 16.

video viewers they serve against interference from fixed microwave operations.

Customers and other satellite users in the 4 GHz and 12 GHz bands have invested hundreds of million dollars in technology in the expectation that they will continue to be authorized adequate access to assigned spectrum. The disruption caused by the reassignment of displaced point-to-point microwave operations into bands used by satellite customers to downlink their signals will cause unreasonable, and in many cases incurable interference with satellite operations and customers. Satellite customers using frequency bands into which displaced microwave licensees might be relocated are entitled to continue their operations protected against the same form of disruption that the Commission proposes to avoid for both new technologies and displaced point-to-point services.³

Accordingly, GE Americom's position is that the Commission should not significantly change the present use of either the 4 GHz or 12 GHz bands. Instead, the Commission should protect satellite customers that use C-band satellites to downlink signals in the 4 GHz band by not adopting a restructuring that would adversely affect these operations, such as that proposed in the comments of Alcatel Network Systems ("ANS"). To the contrary, there is merit in not permitting any displaced 2 GHz operations to use the 4 GHz band unless they cannot be

³ 7 FCC Rcd at 1542.

accommodated on a suitable frequency elsewhere or allowing such displaced users to operate in this band only a secondary basis.

A more aggravated situation exists with regard to customers of Ku-band satellites, because it is impossible to coordinate point-to-point operations with the geographically-unrestricted small-aperture antennas that are required to serve the Ku-band direct-to-home market and the VSAT market, which is the highest sector of growth in satellite business communications. In order to foster the evolving Ku-band direct-to-home and VSAT markets in the 12 GHz band, markets which are as much emerging telecommunications technologies as those the Commission has under consideration in this docket, this band should not be open to displaced microwave users at all.

The Commission Should
Reject Proposals to Reallocate and
Rechannell the 3.7-4.2 GHz Band

GE Americom agrees the arguments of GTE Service Corporation that, "If it is determined that a restructuring proposal at 4 GHz would have ... adverse affects on satellite operations," such a restructuring should not be adopted.⁴

In particular, the approach contained in the comments of ANS should be totally rejected, because it would restructure the 4 GHz band in a way that would have serious adverse effects on the users of C-band satellites. Specifically, ANS seeks to reduce

⁴ GTE Comments at 16.

the spectrum in which the users of C-band satellites can downlink signals to cable head-end antennas by removing 80 MHz from the 3.7-4.2 GHz band and reallocating it, on a primary basis, to microwave operators. As to the remaining bandwidth that satellites and microwave services use on a co-primary basis, ANS proposes to reduce, by half, the offsets between transponder and microwave frequencies.⁵

GE Americom opposes such proposals. Removing 80 MHz from satellite customers that use these frequencies to downlink C-band video programming and other signals would deny full use of the radiospectrum to C-band satellite users. ANS's proposal to make 80 MHz available to satellite users only on a secondary basis, preemptible upon demand by a microwave service, would also effectively remove a certain number of transponders on C-band satellites from use by customers, because reliable and consistent signal distribution is essential to such customers. Few of such programmers, therefore, are interested in taking service on the 80 MHz subject to preemption by microwave operations.

In addition, idling certain transponders preempted by the primary status of microwave users in this band would reduce satellite capacity to customers and underutilize the space segment investments in high-technology C-band satellites.

⁵

These proposals are detailed in a separate petition for rulemaking that ANS filed in RM-8004 and are referred to in ANS's comments here.

The ANS proposal would also undermine commercial investment in ground segment. Satellite users have invested millions of dollars in antennas and other ground equipment designed to utilize the full range of these frequencies in the most efficient manner allowed by state-of-the-art technology. The value of such investments would be severely compromised if they were restricted to receiving a range of satellite signals much narrower than their design capabilities will allow.

ANS's proposed rechannelization of the 4 GHz band would be also have adverse consequences for the users of C-band satellites. Currently, there is a 10 MHz guardband between the center frequencies of satellite transponders and microwave frequencies. ANS's rechannelization proposal would halve this guardband to five MHz, which would complicate the already intricate and time-consuming process of coordination between the two services. It may also involve additional investments, such as to require additional filters and further topographic modification to protect new antenna installations from interference emanating from nearby microwave facilities.⁶ In addition, the increased complications would inevitably introduce delays in the ability of cable operators to provide satellite-delivered programming services to viewers.

⁶ Locating a C-band antenna significantly away from the point at which signals are distributed to subscriber homes would, in turn, impose more strain on the microwave spectrum used to carry such signals from C-band antennas.

For these reasons, and those contained in GE Americom's comments in RM-8004, ANS's requests lack merit and should be denied.

The Commission Should Place
Conditions on Access by Displaced
Microwave Users to the 3.7-4.2 GHz Band

If the Commission allows displaced microwave services into to use the 4.7-5.2 GHz band, it should do so under conditions that protect the unique needs of C-band satellite users for these frequencies. As ANS's filings here and in RM-8004 demonstrate,⁷ there is already severe congestion in the 4 GHz band, resulting from heavy use by satellite customers and microwave operators, which share these frequencies on a co-primary basis. Fixed microwave services are so extensive in this band that frequency coordination necessary for cable head ends to construct a new C-band earth station or an additional antenna is protracted and difficult, often with cost and environmental consequences that adversely impact the timing and efficiency with which C-band satellite customers can downlink programming to cable head-ends and the tens of millions of cable viewers they serve. There is a continuing demand for new C-band antennas to receive video programming distributed by customers of these satellites. Allowing displaced microwave operations unlimited use of the spectrum between 3.7 and 4.2 GHz on a co-primary basis will severely frustrate the need for antenna growth and disserve

⁷ Petition for Rulemaking, Proposal, at 22-23.

satellite customers, cable television companies, and their viewers.

For this reason, GE Americom supports GTE's request that the Commission pay special heed to the requirements of satellite customers in this proceeding.⁸ One option that the Commission may want to explore in order to respect the needs of the customers of C-band satellites for interference-free distribution of their feeds would be to allow displaced 2 GHz microwave licensees access to the 3.7-4.2 GHz band on a co-primary basis only if they cannot successfully relocate their operations in other frequencies with similar operational characteristics. Another option would be to allow displaced microwave operations to share frequencies between 3.7 and 4.2 GHz with satellite customers, but only on a secondary basis.⁹

Neither of these options would particularly disadvantage the need of displaced point-to-point microwave users to be accommodated on new frequencies. As ANS itself points out, there are a number of other bands above 3 GHz (other than the 3.7-4.2 GHz band) that can be satisfactorily used by microwave users.¹⁰

If the Commission declines to consider some form of

⁸ GTE Comments at 16.

⁹ As GTE also correctly points out, any new plan for the 4 GHz band should incorporate the present requirements for frequency coordination. Comments at 16. See also Comsearch comments at 4,5.

¹⁰ ANS Comments at 27-28.

limitation of access to the 3.7-4.2 GHz band by displaced microwave licensees, it is imperative that there be a transition period of at least fifteen years, as the Commission has suggested.¹¹ In the absence of such a transition plan, and unless the Commission adopts the case-by-case relocation approach proposed by GTE,¹² displaced 2 GHz licensees could move to the 3.7-4.2 GHz band en masse and assert their co-primary status there.¹³

Use of the 11.7-12.2 GHz Band
Should Not be Shared
With Displaced Microwave Users

Both GTE and Hughes Networks Systems ("HNS") point out that allowing displaced 2 GHz point-to-point licensees to relocate in the 11.7-12.2 GHz band would adversely affect customers of Ku-band satellites, which use these satellites to downlink signals predominantly to small-aperture antennas.¹⁴ According to HNS,

¹¹ 7 FCC Rcd at 1545.

¹² Comments at 15.

¹³ The adverse consequences of an en masse move could be significant. In its comments, Comsearch estimates that there are 4,800 microwave paths in service in the 1850-1990 MHz allocation, carrying the equivalent of three million voice circuits (Appendix B at 17). The OET Study estimates that there a total of 29,116 facilities that may have to be moved, mostly concentrated in urban areas that are the prime markets for cable television companies. An en masse move would so completely saturate the C-band downlink frequencies as to foreclose the construction of new C-band antennas except in remote, unpopulated areas.

¹⁴ GTE Comments at 16; HNS Comments at 1-2.

allowing displaced 2 GHz licensees into this band will adversely impact its VSAT operations, due to the fact that VSAT systems receive blanket authorizations that do not specify the locations of small transmitters. "Consequently," HNS concludes, "it is operationally impossible for the microwave users to accomplish frequency coordination."¹⁵

GE Americom supports HNS's views and those of GTE that the 12 GHz band not be shared. The operations of GE Americom's Ku-band customers using VSAT systems as well as those transmitting video signals to small direct-to-home dishes¹⁶ similarly could not be coordinated with point-to-point microwave systems because they equally geographically unrestricted. Indeed, one of the driving factors in the development and use of Ku-band technology is that Ku-band signals can be distributed to blanket-licensed or unregulated small-dish antennas free of the interference that often makes the siting of C-band antennas so difficult, and without Commission oversight as to where they may be located. The VSAT and direct-to-home markets are as much emerging telecommunications technologies as any to which the Commission

¹⁵ HNS Comments at 8.

¹⁶ The primary customer for GE Americom's Satcom K-1 satellite is Primestar, the first venture to use the statutory license granted under the Satellite Home Viewer Act amendments to the Copyright Act to offer mass market video services directly to consumer homes. Primestar first began offering services to the general public in 1991 and has enrolled tens of thousands of subscribers to date by providing consumers video programming, decoders, and small (one meter) antennas, all for one monthly subscriber fee.

wishes to allocate spectrum in this docket.

The equipment used to receive customer video and data transmissions on Ku-band satellites is sited in accordance with the Commission's policies, without regard to geographical location. Due to the fact that frequency coordination with unregistered antennas and geographically widespread blanket-licensed antennas is impossible, the introduction of displaced 2 GHz licensees into this band is operationally impossible. For these reasons, it is contrary to the public interest to allow any microwave use at 11.7-12.2 GHz.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Alexander P. Humphrey". The signature is stylized with a large, looped initial 'A' and a cursive 'H'.

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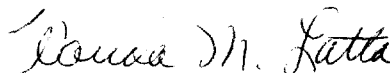
I hereby certify that I have served copies of the foregoing Reply Comments of GE American Communications, Inc. by mailing, on this eighth day of July, first-class postage prepaid, to the following:

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